



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts
SECTOR 1 — CHART INFORMATION

SECTOR 1

GULF OF FINLAND (SOUTHERN SHORE)—OSMUSSAAR TO ST. PETERSBURG GUBA

Plan.—This sector describes the S shore of the Gulf of Finland including the N shore of Estonia and the adjacent territory of Russia concluding at St. Petersburg Guba. The descriptive sequence is E from Osmussaar Island to Mys Shepelevskiy (59°59'N., 29°08'E.).

General Remarks

1.1 Ice.—Ice first appears in the Neva Estuary, between St. Petersburg and Kronshtadt, and in Vyborgskiy Zaliv (60°30'N., 28°30'E.) about the middle of November. The spread of ice is much more rapid along the N shore than along the S. Toward the end of December, it extends along most of the N shore, filling the inlets; on the S shore, it does not reach much W of Narva.

In the middle of January, ice fills the E end of the gulf to a position between Ostrov Moshchny (60°00'N., 27°50'E.) and Ostrov Gogland (60°05'N., 26°53'E.), while ice along the N shore has extended to form a wider coastal belt. On the S shore, the ice may have spread only slightly W of Narva, but in some years reaches longitude 26°E. By the middle of February, a rapid W extension has taken place, with ice covering the whole gulf E of Tallinn and reaching along the whole of the S shore, and farther W to enclose the island of Hilumaa. The only open part of the gulf at this time is therefore at the W end, away from the shores.

The ice attains its greatest extent about the first week of March, when the whole gulf is encumbered. Before the end of March, it is in retreat E. In the middle of April, the S shore is clear to about longitude 27°30'E; a little W of Narva, though ice still remains between Hiiumaa and the Estonian shore. Most of the gulf to the E of longitude 26°E is still ice encumbered, and ice persists in a wide belt along the N shore. The subsequent dispersal of the ice is rapid and at the beginning of May, ice is only found E of longitude 26°E, particularly between Ostrov Moshchny and Zaliv Primorsk (60°22'N., 28°38'E.). By the middle of May, all ice has disappeared.

The amount of ice in any particular part of the coast at a given time may depend very much on the direction of the wind. For example, in Tallinn Harbor, drift ice is mostly formed by N and NE winds; frequently this ice is driven out again by S winds and the roadstead becomes quite safe for shipping without the aid of an icebreaker.

Tides—Currents.—The fundamental circulation of the currents in the Gulf of Finland is an inflow of water E along the S shore, past Tallinn, and an outward flow W along the N shore, past Helsinki. This outward flow, turning NW at the mouth of the gulf, passes into the N current along the E coast of the Gulf of Bothnia.

The current in the gulf at any time depends largely on the wind. During W and SW winds, the current sets into the gulf along both the N and S shores. With light winds, the excess of water driven into the gulf emerges in a W direction. With W

gales, a strong current runs into St. Petersburg Guba, S of Kronstadt; this current runs out on the N side, continuing along the shore of the gulf towards Mys Seyveste, with considerable force.

If there is any N direction to the wind, a set into the bights on the S shore of the gulf will generally be experienced.

After the break-up of the ice in the early spring, the outflow of water from the gulf is temporarily increased.

In the passage between Lavansaari and Kurgatski Rif, in calm weather, there is usually a weak SW current; at other times the direction and velocity depend on the wind.

While the tidal range in this area is negligible, considerable change in the water level may be caused by strong winds, variation in atmospheric pressure, and the seasonal amount of water released by the rivers.

Depths—Limitations.—All dangers along the immediate coast from the island of Osmussaar ENE to Tallinn, a distance of about 44 miles, are contained within the 40m curve, which has a greatest distance from the shore of about 8 miles.

From Tallinn to Letipea Neem, there are a number of rivers that discharge into the gulf. The coast in this area is marked with numerous off-lying islands, shoal banks, and shoal patches that extend up about 16 miles seaward.

Aspect.—The S coast of the Gulf of Finland consists of long stretches of limestone cliffs rising abruptly from the sea. This profile is prevalent in many of the coastal areas. The coastline is well-wooded and rises to heights of 80 to 92m in some localities.

The Estonian coast from Osmussaar Island to Tallinn (59°27'N., 24°46'E.) ranges from a low and sandy aspect with a border of woods to wooded hills.

The coast between Tallinn and Letipea (59°33'N., 26°35'E.) can be described as low, sandy, and bordered by woods, to steep cliffs and ridges with wooded hills inland.

Between Letipea and Mys Shepelevskiy, where this sector concludes, the coast is low, rocky, and wooded. It is also interspersed with meadows and marshy ground. The meadows contrast with the steep stone cliffs and partially-wooded hills, which rise to heights of 150m.

Pilotage.—The Baltic Pilotage Authorities Commission, a regional organization, recommends that vessels constrained by their draft, or vessels not registered in one of the Baltic states, and infrequently sailing the area, take a deep-sea pilot.

See Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea for information on deep-sea pilotage. See also the respective port descriptions in this volume.

All requests for pilotage in the Archipelago Sea and the Province of Åland should be directed to Turku pilot station. Vessels requesting pilots from the station at Isokari should send an ETA at least 12 hours in advance. Pilots can be contacted by VHF and board about 3 miles NW of Isokari Light (60°44.5'N., 20°55.0'E.). See [paragraph 4.1](#) for further details.

Regulations.—Certain areas (restricted and semi-restricted) in Finnish waters have been declared restricted for reasons of navigational safety, inadequate charting, or for defense reasons. Foreign vessels, including small craft, may not enter these areas without permission, except to follow an officially recognized fairway for which permission is not required.

Anchoring within these areas is prohibited except in an emergency or when authorized to do so by the appropriate authority. However, a foreign vessel may anchor for not more than 48 hours within a restricted area in a recognized anchorage or mooring area indicated on the charts.

Permission to stay within a restricted area or to navigate outside the general fairways is granted on application to the Military Area Headquarters. Applications should be made on an official form not later than 14 days before planned entry into the area. Applications can be made after this time to the local Frontier Guard Authorities for a visit not exceeding 72 hours.

Vessels should consult the pilot for information on local rules, including regulations on the operation of navigation equipment and radios.

Directions.—Several IMO-adopted Traffic Separation Schemes (TSS) form the main route through the Gulf of Finland.

A Traffic Separation Scheme (TSS), established by the local authorities, exists in the approaches to the port of Tallinn.

All of the above schemes may best be seen on the appropriate charts.

Caution.—It has been reported (1993) that all navigational aids in the S part of the Gulf of Finland may be unreliable. Vessels should exercise extreme care when identifying these aids.

It has been reported (1992) that lines of position based on Finnish navigational aids will not agree with positions derived from navigational aids on the Estonian side of the Gulf of Finland. Differences in some cases were reported to be as much as 1 mile.

During the winter, many buoys are removed, while others may be damaged or break adrift.

In the coastal waters within this sector, numerous logs may be found adrift at all times of the year.

Several unexploded ordnance areas lie off the shores of the Gulf of Finland and may best be seen on the chart.

Areas dangerous due to mines laid during World War II exist within the Gulf of Finland. There is still a risk of danger in these areas when anchoring or carrying out any seabed activities.

Off-lying Islands, Islets, and Dangers

1.2 Osmussaar Island (59°18'N., 23°22'E.) ([World Port Index No. 28510](#)) lies 4 miles NW of Poosaspea Neem. The center of the island, when viewed from a considerable distance, gives the impression that there are two islands. Overhanging limestone cliffs on the N side of the island rise to a height of 10m, the lower parts of which have been undermined by the action of the sea. The W and S sides have hills and ridges composed of gravel and sand.

A village is situated on a hill near the middle of the island; two windmills stand in this vicinity. A prominent white church, with a black spire, is situated 0.5 mile SE of the village.



Osmussaar Light

A main light is shown from a conspicuous tower, 35m high, standing on the NW extremity of the island. A beacon stands on the SE extremity of the island.

Anchorage may be obtained off the S side of Osmussaar, about 1.5 miles S of the light, in a depth of 27m, mud and sand. Anchorage can also be obtained, in a depth of 13m, rock and sand, about 3.5 miles SE of the light.

Anchorage is prohibited within 0.4 mile on either side of the submarine cables laid between the SE end of Osmussaar and the mainland.

Neugrund, an extensive shoal area, lies 5 miles ENE of Osmussaar and is marked by a lighted buoy on its N side.

Suur Pakri (59°20'N., 23°54'E.), marked by a light at the N extremity, is bare and flat, with steep cliffs at its N end; in its S part are three villages and several clumps of trees.

Krassigaar, an extensive shoal which dries in places, lies about 2.5 miles W of Suur Pakri. It is marked by buoys at the E and S sides, and by a lighted buoy at the N side.

Vaike Pakri lies close E of Suur Pakri and is connected to it by a causeway. The N end of this island is high and steep, but the S end is low and flat. The E side of the island is hilly and the center is wooded. There are two villages, one on the E side and the other on the W side.

Pakri Madal, a shoal, has a depth of 6.2m. It lies about 1.5 miles N of Pakri Neem and is marked by a lighted buoy.

Tallinna Madal (59°42'N., 24°44'E.), with a least depth of 2.6m, lies in the N approaches to Tallinn and is the outermost danger in this vicinity.

A main light is shown from a tower, 31m high, standing on this shoal. A racon is situated at the light.

The islands and dangers lying S and W of this shoal are described later in the text.

1.3 Prangli Saar (59°38'N., 25°00'E.), a low and wooded island, lies on the E side of the approaches to Tallinn. This island is surrounded by foul ground and marked by lights on its NW, E, and S sides.

Keri Saar, a low and rocky islet, is located 3.5 miles N of Prangli Saar and surrounded by foul ground. A main light is shown from a tower, 31m high, standing at its SE end. A signal station is situated close to the light.

Kuradimuna, a shallow shoal, lies 3.5 miles W of Keri Saar. It is located on an area of foul ground and is marked by a lighted buoy.



Keri Saar

Nygrund, with a least depth of 4.6m, lies about 2.5 miles SSW of Kuradimuna and is marked by a lighted buoy.

Aksi Saar, a fairly high island, lies close E of Prangli Saar and is fronted by foul ground.

Rammu Saar (59°35'N., 25°14'E.), a flat island, is located about 4 miles SE of Aksi Saar. Foul ground fronts the N end of this island and is marked by a lighted buoy.

Anchorage may be obtained, in a depth of 10m, S of Rammu Saar, about 0.5 mile offshore.

Mohni Saar (59°41'N., 25°48'E.), an island lying off Eru Laht, has a steep bank of shingle along its SW side. Its NW end is formed by a rocky hill and its NE side is fronted by foul ground and shoal water.

A main light is shown from a tower, 27m high, standing on the NW extremity of the island. A signal station is situated in the vicinity of the light.

1.4 Vaindlo (59°49'N., 26°22'E.) is a conspicuous rocky islet, 8m high, lying in the central portion of the Gulf of Finland. Foul ground and foul patches extend N, NE and S from the shores of this islet. Kakumadal, a shallow rock, lies at the extremity of a reef which extends up to 2 miles S from the S extremity of the islet. An isolated shoal, with a depth of 6.8m, lies about 3 miles SE of the islet.

A main light is shown from a tower, 17m high, standing on the central portion of the islet. A signal station is situated at the light.



Vaindlo Light

Pohja Uhtja (59°41'N., 26°31'E.) is an extensive group of dangerous rocks, shoals, and islets lying 9 miles SSE of Vaindlo. This group extends for about 10 miles and is marked at its S end by a buoy.

Ostrov Rodsher (59°58'N., 26°41'E.) is a rocky islet surrounded by a reef. A main light is shown from a tower, 19m

high, standing on the N side of this islet. A racon is situated at the light.

Ostrova Virginy (59°57'N., 26°52'E.) consists of two rocky islets lying 1 mile apart. They are fringed by reefs, which are marked by buoys, and fronted by shoals. A main light is shown from a tower, 14m high, standing on the northwesternmost islet.

Ostrov Maly Tyuters, lying 17 miles E of Vaindlo, is a low sandy island with a pine forest at its center. The island is surrounded by foul ground, rocky reefs, and boulders rising from the water.

Ostrov Bolshoy Tyuters (59°51'N., 27°11'E.), lying 7 miles ENE of Ostrov Maly Tyuters, is moderately high and densely wooded. A main light is shown from a tower, 24m high, standing on the summit of this island.

A shoal bank, marked by a buoy, extends up to about 2.5 miles SSE of this island.

Ostrov Gogland (60°03'N., 26°59'E.) is 176m high and wooded. It has three peaks and is reported to be visible from a distance of 34 miles in clear weather. A main light is shown from a framework tower, 23m high, standing on the heights at the N end of the island. Another light is shown from a tower, 26m high, standing on the S extremity of the island. A radiobeacon is situated at this light.

During E winds, vessels may anchor, in depths of 36 to 54m about 1 mile off the W side of Ostrov Gogland, but the holding ground is not good.

Small craft can anchor, in depths of 3 to 6m, within the small bay at Suurkyla, 1.5 miles SSE of the N extremity of the island, but it is exposed to E winds. The bay is sheltered by a breakwater and a village with a church stands at the head.

Vikalla, an extensive shallow reef, lies centered 7 miles S of the S extremity of Ostrov Gogland. The N and S extremities of the reef are marked by lighted buoys.

1.5 Ostrov Moshchnyy (60°00'N., 27°50'E.), located 24 miles E of Ostrov Gogland, is moderately high and wooded. Poluoostrov Promezhutchnyy, the E part of the island is connected to the W and main part by a narrow isthmus, 5m high. Three small peninsulas extend N from the NW end of the island. Shoals extend up to about 6 miles S from the S end of the island and are marked by buoys. A main light (Bashnya Lavensari) is shown from a framework tower, 29m high, standing at the N end of the island. A racon is situated at the light.

Anchorage can be taken in Nore Kapel'lakht, about 0.7 mile N of the isthmus connecting the E and W parts of the island. The anchorage has depths of 8 to 14m, fine sand, but it is exposed to N winds.

Ostrov Maly, lying 3 miles E of Ostrov Moschnyy, is low, wooded, and surrounded by reefs. The E and W sections of this island are joined by a sandy isthmus, 4m high. An islet, covered with grass, lies close W of the N extremity of the island, which is formed by a low spit. A lighted beacon, 27m high, stands on the W part of the island.

Anchorage, protected from S winds, can be obtained E of the N end of the island, in depths of 18 to 20m.



Ostrov Gogland South Light

Shoals extend up to about 7 miles NNW and 5 miles S of Ostrov Malyy. They are marked by buoys and may best be seen on the chart.

Ostrov Seskar (60°02'N., 28°23'E.) is low, densely wooded, and surrounded by foul ground. Several villages stand on its W side. Lights are shown from the N and S extremities of the island. Extensive shoals and reefs extend up to 4 miles seaward from the W side.

Caution.—Prohibited areas, the limits of which are shown on the chart, lie centered 4 miles NE of Ostrov Malyy, about 10 miles W of Ostrov Moshchnyy, and in the vicinity of Ostrova Seskar.

Gulf of Finland

1.6 Poosaspea Neem (59°14'N., 23°31'E.) is a densely-wooded cape fronted by a rocky reef. A main light is shown from a framework tower, 16m high, standing on the cape. On the E side of the cape there is a conspicuous ridge, on which stand several prominent windmills.

Dirhami, a small fishing harbor, is situated 1 mile S of Poosaspea Neem.

The entrance to the Gulf of Finland lies between Osmussaar Island, located 4 miles NW of Poosaspea Neem, and the island of Russaro (59°46'N., 22°57'E.), the largest of the islands located S of Hankoniemi.

Toomanina (59°15'N., 23°40'E.), a headland fronted by shoals, lies 4.8 miles ENE of Poosaspea Neem. The coast between is sandy with wooded hills in places. A conspicuous tower stands on this headland.

Keibu Laht, a bay, is entered between Toomanina and Ristinina, a precipitous point 2.7 miles NE. This bay provides anchorage, in depths of 6 to 9m, mud and sand, sheltered from NE, through S, to W winds. Local knowledge is advised.

Pakri Neem (59°23'N., 24°02'E.) is a headland faced by high cliffs. A main light is shown from a tower, 52m high, standing on this headland. A signal station stands near the light. The ruins of a disused tower are situated close W of the light.

Paldiski Laht, 13 miles E of Toomanina, extends SSE between Vaike Pakri and the mainland. It is the most sheltered bay in Estonia. The E shore is high and forms a plateau, while the S shore is low and marshy in some places.

Caution.—Numerous sunken mines are reported to lie in the entrance of Paldiski Laht.

1.7 Paldiski (59°21'N., 24°02'E.) ([World Port Index No. 28505](#)), a small commercial port and former naval base, is

situated within Paldiski Laht. It consists of a basin, protected by two moles, lying adjacent to the town and a pier situated about 1.2 miles SE. The port is used primarily for the export of fish, potatoes, and timber products.

This port is under the jurisdiction of Tallinn and is considered to be part of the Port of Tallinn.

Winds—Weather.—Winds from E cause the water in the basin to fall while W winds cause it to rise. The maximum difference between highest and lowest water amounts to about 0.9m.

Ice.—Paldiski Laht freezes later than other ports in the Gulf of Finland. The ice lasts, on an average, for 33 days, but in a mild winter there may be none. The bay is kept open by icebreakers throughout the winter. The navigation season is normally the period from March 15 to February 1.

Depths—Limitations.—The entrance of the basin is 25m wide and has a depth of 7m. The basin itself is about 145m long and 37 to 73m wide. It provides 400m of quayage, with depths of 6 to 7m alongside.

The pier extends S and SSE and is 400m long. It provides 360m of berthage, with a depth of 8.6m alongside. Vessels up to 140m in length and 8.4m draft can be handled.

Aspect.—Lighted ranges indicate the approach channel and the fairway leading to the pier.

Pilotage.—Pilotage is available through Tallinn. Vessels should send an ETA and request for pilotage 24 hours and 4 hours in advance. Pilots can be contacted by VHF and board in position 59°23'N, 24°00'E.

Anchorage.—Designated anchorage areas lie 1.2 miles W and 0.7 mile NW of the pier. These areas lie on both sides of the range line and have depths of 12 to 22m, mud and sand. Another designated area lies 1 mile NW of Pohjasadam (59°21'N., 24°03'E.) and has a depth of 35m, sand and clay.

Small vessels may anchor SE of Vaike Pakri, in depths of 4 to 6m, mud and sand, sheltered from winds from all directions.

Caution.—A spit lies about 0.5 mile NW of the town of Paldiski. It is formed by the remains of an old stone mole and extends about 0.2 mile from the shore in front of an old fort.

A spoil ground area, which may best be seen on the chart, lies in the vicinity of the pilot boarding position.

An explosives dumping area, which may best be seen on the chart, lies close off the E side of Vaike-Pakri.

1.8 Lahepere Laht (59°22'N., 24°12'E.), entered between Pakrineem and Lohusalunina, 4.8 miles E, is open NW and has a bottom of rock covered with sand. The shores of the bay are



Courtesy of Port of Tallinn

Tallinn (Main Harbor)

wooded. Leetse is an estate standing on the W side of the bay, the buildings of which are visible from seaward.

Lohusalu Laht, lying between Lohusalunina and Suurupi, 6.5 miles NE, is sheltered from offshore winds. It affords anchorage for small vessels, in a depth of 5m, but is fringed by shoals. A marina is situated at the W side of this bay. Turisalu, a resort, stands on high ground, faced with reddish cliffs, between two rivers in the S part of the bay.

Suurupi (59°28'N., 24°23'E.) is a broad hilly and promontory, 43m high. Ninamaa, a wooded headland, forms the NW extremity of this promontory and is fronted by shoals. A main light is shown from a tower, 22m high, standing 0.8 mile SE of this headland.

Naissaar (59°34'N., 24°31'E.), lying in the middle of the entrance of Tallinna Laht, is densely wooded; the tops of the trees rise to a height of 30m in places. From seaward, this island shows up distinctly as a dark belt against the mainland. The E side is sandy and hilly, but the W side is more level.

A settlement, with a red church, stands at the S end of the island. A main light (Pikasaare Oys) is shown from a tower, 45m high, standing on the N extremity of the island.

Uus Madal, a shoal with a least depth of 3.2m, lies about 4.3 miles NE of the light and is marked by lighted buoys.

Niassaare Madal is an extensive rocky shoal lying parallel with and 2 miles E of the E side of the island. It is marked on the N, W, and S sides by buoys and may best be seen on the chart.

Aegna Saar, densely wooded, lies 7 miles E of Naissaar and is fronted by shoals. A narrow, sandy isthmus extends 0.5 mile seaward and forms the NE extremity of this island. A lighted beacon stands on a rock about 1 mile NNW of the island.

Kopli Laht (59°27'N., 24°39'E.) is entered between Kakumae Neem and Kopli Nina, the NW extremity of a peninsula, 2.5 miles E. Two shipyards, the buildings of which

are conspicuous from seaward, are situated on the SW side of this peninsula. A lighted range situated at the head of the bay indicates the approach channel. See the port of Tallinn, paragraph 1.9, for further details.

Tallinna Reid (59°36'N., 24°40'E.), entered between Naissaar Island and Aegna Island, extends SSE to Tallinna Laht. The port of Tallinn lies along the shore of this latter bay.

Vahemadal (59°31'N., 24°40'E.), an extensive shoal, lies in the S part of Tallinna Reid, about 3.5 miles SE of the S extremity of Naissaar. It has a least depth of 3m and is marked by buoys and a lighted beacon.

Leoutjevimaldal, with a least depth of 10m, lies about 2 miles W of Vahemadal and is marked by a buoy.

Caution.—Submarine cables are laid within about 0.2 mile of the entrance to the northwesternmost shipyard in Kopli Laht; the area is marked by buoys.

Submarine cables, which may best be seen on the chart, are laid between the S end of Naissaar and the mainland.

Tallinn (59°27'N., 24°26'E.)

[World Port Index No. 28480](#)

1.9 Tallin, which is the capital of Estonia, is considered to be the most important harbor on the S side of the Gulf of Finland. In addition to passengers, the principal cargoes include coal, cotton, machinery, timber, natural oil, and meat.

The harbors at Mugga ([paragraph 1.10](#)) and Paldiski ([paragraph 1.7](#)) are considered to be part of the Port of Tallinn.

Winds—Weather.—In Tallinna Reid, the prevailing winds are W or SW, but NE winds are the strongest. With strong N winds, especially during the autumn, heavy seas and swell are produced which may interfere with vessels attempting to maneuver in the port.

Ice.—Tallinn Laht may be frozen over in severe winters. From mid-January through March, the port is kept open by icebreakers, with sometimes only a single lane available to shipping. Ice has appeared in the inlet as early as November and has lasted until May.

Tides—Currents.—The tidal range in Tallinn Laht is very slight. The difference of the water level is due solely to the effects of the wind. A rise of water of about 0.4 to 0.5m from MLW is sometimes observed during NW and W winds. The reduced level of water is caused by SE and E winds.

Depths—Limitations.—The approaches to the port from N and W via the Traffic Separation Schemes (TSS) are deep and clear.

Kopli Sadam, also known as Paljassaare Sadam, lies at the W side of the bay and is used by commercial vessels. There are four berths on the S side, with depth of 3.4 to 8.7m alongside, and seven berths on the N side, with depth of 4.1 to 9m alongside. The basin provides facilities for container, ro-ro, and tanker vessels. Cargo vessels up to 190m in length and 8.6m draft can be accommodated; tankers up to 120m in length and 6m draft can be accommodated.

Several basins lie close SE of this harbor and are mostly used by naval, port authority, icebreaker, and fishing vessels.

Pirita, an extensive yacht harbor, lies at the E side of the bay and is protected by two breakwaters.

Kesklinna, formerly known as Vanasadam, lies in the S part of the bay and is the main commercial harbor. A detached breakwater is situated at the mouth and provides two entrances. The N entrance is 116m wide and has a depth of 11m. The S entrance is 90m wide and has a depth of 7.5m. The harbor has four basins which provide 23 berths, with depths of 4.7 to 10.7m alongside.

There are facilities for general cargo, bulk, ro-ro, container, and passenger vessels. Vessels up to 240m in length, 40m beam, and 10.7m draft can be accommodated.

Miiduranna Sadam lies on the NE side of the bay, 3.2 miles NNE of Kesklinna. This small harbor is protected by a breakwater and is divided into two basins. Vessels up to 120m in length, 17m beam, and 3.8m draft can be accommodated.

Vene-Balti Port, a shipbuilding and repair complex, lies at the NE side of Kopli Laht. It has two main basins and several floating docks. Vessels up to 200m in length and 6.5m draft can be handled. A basin area, used by patrol vessels, lies S of this shipbuilding complex.

Bekkeri and Meeruse are small harbors lying at the E side of Kopli Laht. They are used by commercial vessels and fishing craft. Vessels up to 140m in length, 22m beam, and 7.2m draft can be accommodated.

Aspect.—The fairway channels of the TSS in the approaches are indicated by lighted ranges, which may best be seen on the chart.

The city extends on two levels along the steep rocky coast in the SE portion of the bay. Numerous high buildings, towers, chimneys, and masts stand in the vicinity of city. In good visibility, the cathedral spire of Oleviste church can be recognized from a distance of 25 miles. It is 125m high and stands close SW of Kesklinna harbor basin. Toompea Citadel, surrounded by a high stone wall, is also conspicuous. It stands 0.5 mile SW of Oleviste church and has a church with a dark green spire. The high ruins of a prominent monastery stand on

the E side of the bay, on the N bank of the Pirita River. A conspicuous obelisk is situated 1 mile SW of these ruins.

Pilotage.—Pilotage is compulsory for all vessels in Tallinn Bay, Kopli Bay, and Muuga Bay. Pilotage is available any time and should be requested 24 hours and 6 hours in advance of the ETA at the pilot boarding place. Pilots should be contacted by VHF 2 hours in advance through the Traffic Control Station (Tallinn on VHF channel 13 and Muuga on VHF channel 67) and board, as follows:

- a. Tallinn—1 mile NW of Tallinn Lighted Buoy No. 1 (moored 4.7 miles E of Pikasaare Ots Light) or 0.5 mile S of Suurupi Lighted Buoy No. 2 (moored 2.2 miles S of the S extremity of Naissaar Island).
- b. Kopli—0.5 mile S of Suurupi Lighted Buoy No. 2.
- c. Muuga—vessels from the NW are boarded 3 miles NE of Tallinn Lighted Buoy No. 1; vessels from the NE are boarded in position 59°39.0'N, 25°05.4'E.

Regulations.—See Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea for regulations pertaining to vessels approaching the ports along the S coast of the Gulf of Finland. See also the General Remarks in [paragraph 1.1](#).

The Traffic Separation Scheme (TSS) instituted by the local authorities in the S part of Tallinn Reid is not IMO-adopted. However, the authorities advise that the principles of Rule 10 of the Colregs apply. Vessels must obtain permission from the Ship Traffic Control Center before entering this TSS.

A mandatory Vessel Traffic Service (VTS) system is in effect for all waters within Tallinn Bay, Muuga Bay, and Kopli Bay. This system applies to all vessels navigating within the area and consists of Ship Traffic Control Centers situated at the commercial ports.

The service provides approach instructions, weather information, details of aids to navigation, and radar guidance. All movements, including anchoring, are controlled within the area by the VTS. All vessels must maintain a listening watch when within the area.

All vessels must report 48 hours in advance through Tallinn (ESA) or their agent to the VTS Traffic Control Center at Tallinn. The message must include their ETA at the pilot boarding position, draft fore and aft, and purpose of visit.

On approaching the port area, vessels must report to the VTS and adjust their ETA if necessary. Vessels bound for Tallinn or Kopli must report to the Tallinn Traffic Control Center on VHF channels 13 or 16. Vessels bound for Muuga must report to the Muuga Traffic Control Center on VHF channel 67.

The VTS may, if necessary, impose speed restrictions or establish one-way traffic within the area.

Vessels requiring icebreaker assistance should report, either directly to the harbormaster or to the agent, their ETA at the meridian of Ristna Light (58°56.35'N., 22°03.30'E.) 12 hours in advance. The harbormaster, through the VTS, maintains control over icebreaking operations. Information pertaining to the position of the ice edge and icebreaker pilotage will be supplied. Vessels bound for Tallinn, Kopli, or Muuga are usually requested to wait for icebreakers in position 59°10'N, 22°00'E.

Anchorage.—The bottom in the deeper parts of the roadstead is formed by soft mud. Close in, off the E shore, it is



Courtesy of Port of Tallinn

Muuga (Port of Tallinn)

sand and, in places, rocks. Off the W shore it is mostly mud, sand, and stones.

Designated anchorage areas, including two for dangerous cargo, are situated within Tallinn Reid. They have depths of 17 to 37m and may best be seen on the chart.

Care is advised as obstructions have been reported to lie within the vicinity of these anchorage areas.

Directions.—Recommended routes and Traffic Separation Schemes (TSS), which may best be seen on the chart, lie in the N and W approaches of Tallinn Reid.

Caution.—A local magnetic anomaly has been reported to exist on the E side of Tallinn Reid.

Several obstructions lie in the S part of Tallinn Reid. They are marked by buoys and may best be seen on the chart.



Tallinn Light on Madal Bank

Port of Muuga (59°30'N., 24°56'E.)

1.10 The port, formerly known as Novotallinnsakiy, is a newly-developed complex lying within Muuga Laht. It specializes in bulk grain, reefer, chemical, timber, and vehicle cargoes.

This port is under the jurisdiction of Tallinn and is considered to be part of the Port of Tallinn.

Winds—Weather.—The port and roadstead are unprotected from winds out of the NW, N, and NE. Even with only moderate winds from a N direction, dangerous surges may be experienced at the berths.

Ice.—See General Remarks in [paragraph 1.1](#) and the port of Tallinn in [paragraph 1.9](#).

Depths—Limitations.—The harbor is divided into two basins by the grain pier. The basins provide 17 berths, 79 to 330m long, with depths of 7.2 to 17.4m alongside. There are facilities for bulk, container, ro-ro, reefer, ferry, and tanker vessels. The grain pier is 335m long and has a depth of 18m alongside. It can accommodate vessels up to 280m in length, 40m beam, and 16.5m draft. An oil terminal lies in the NW part of the W basin and has a jetty, 253m long, with a depth of 12.5m alongside. Tankers up to 11.5m draft can be handled at this terminal.

Aspect.—A lighted range, which may best be seen on the chart, indicates the channel leading into Muuga Laht. A conspicuous television tower and a grain elevator are situated 2 miles SW and 0.2 mile SE, respectively, of the front range light.

Several shoals lie adjacent to the approach and are marked by lighted buoys.

Pilotage.—See [paragraph 1.9](#).

Regulations.—Speed in the approach channel is limited to 10 knots.

Vessels greater than 25,000 grt are usually not berthed with winds over 23 knots. With strong winds from NW, N, or NE, vessels may be required to proceed from the berth to a safe anchorage. It is reported that large vessels are berthed at the grain complex only during daylight, with wind velocities of not more than 19 knots. At all times, vessels must have their main engines available for use on 1 hour's notice.

It is advised that at least one-third of the vessel's crew must be aboard at any time, as well as either the master or the chief officer.

The use of tugs is reported to be mandatory for vessels over 2,000 grt

See Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea for rules pertaining to vessels in the waters of the S part of the Gulf of Finland. See also General Remarks in [paragraph 1.1](#).

A Vessel Traffic Service (VTS) System is in effect for all waters within Tallinn Bay, Muuga Bay, and Kopli Bay. On approaching the port area, vessels must report on VHF channel 67 to Muuga Port Ship Traffic Control. For further information, see the port of Tallinn ([paragraph 1.9](#)).

Anchorage.—There are four designated anchorage areas. Anchorage Area A lies 2 miles SW of Ihasaluneem (59°32.5'N., 25°09.1'E.) and has depths of 19 to 38m, sand and clay. It provides shelter from winds from between ENE and S.

Anchorage Area B lies 1.5 miles SSW of Prangli Saar Light (59°36.9'N., 25°02.4'E.) and has depths of 20 to 60m, sand. It is for vessels carrying dangerous cargoes.

Anchorage Areas C and D lie, respectively, 1.2 miles N and 1.5 miles NE of the grain pier. These areas have depths of 12 to 30m, sand and clay, and are situated on either side of the entrance range.

Directions.—Vessels from N may pass about 4 miles E of Keri Saar and then either E or W of Aksi Saar. An alternative route leads SE from the TSS lying in the approach to Tallinn. A lighted range, which may best be seen on the chart, indicates the entrance channel leading to the harbor complex.

The VTS Ship Traffic Control Station may establish one-way traffic in the entrance channel with the passage of vessels of over 25,000 dwt, or in reduced visibility. See [paragraph 1.9](#).

Caution.—An extensive shoal, with a least depth of 1.8m, lies about 3.3 miles NNE of the front range light and is marked by a lighted buoy.

1.11 Ihasalu Nina (59°32'N., 25°09'E.), a headland, is located 7 miles ENE of Muuga and surmounted by a beacon and a tower.

Ihaslu Laht, a bay, is entered 2 miles SW of the headland, but is not suitable as an anchorage because it is deep and open to the NW. A below-water reef extends up to about 1.3 miles NW from the head of the bay.

Kaberneeme Laht (59°32'N., 25°14'E.) is entered between Ihasalu Nina and Rammu Saar, 2.8 miles NE. This bay is not suitable as an anchorage as it is also deep and open to the NW. A reef, with a least depth of 0.9m, extends about 1.7 miles NW from the head of the bay.

Rammu Saar is described with off-lying dangers in [paragraph 1.3](#).

Koipsi Saar, lying 1 mile SE of Rammu Saar, is fairly high with a flat top. A settlement stands on its NE side. The island is separated from the mainland at Kaberneeme by a narrow channel.

Kolga Laht is entered between Rammu Saar and Juminda Nina, 9 miles ENE. Kuusalu church stands 2.8 miles S of the head of bay and is prominent. Valkla mill and several conspicuous buildings are situated on the high coast, about 3.8 miles NW of this church. Leesi church, also conspicuous over the tops of the trees, stands 2.5 miles S of Juminda Nina. A prominent beacon stands near a village at the head of the bay.

Juminda Nina, fronted by shoals, is a densely-wooded headland surmounted by several conspicuous gray structures and two framework towers. A main light is shown from a round tower, 24m high, standing on this headland.

Pohjar Malusi, a low and rocky island, lies 6 miles WSW of the light near the middle of the entrance to the bay. An extensive area of islets, shoals, and rocks extends SE into the bay from this island and may best be seen on the chart. Pedasaar, a large islet, lies in the SW part of the bay and is connected to the head by a shallow sandy ridge. It is densely wooded and prominent from seaward. Vessels may anchor in the W part of the bay, but local knowledge is advised.

Hara Laht is entered between Juminda Nina and Purekkari Neem, about 5.5 miles E. This bay extends about 6 miles SSE between two peninsulas. Purekkari Neem is surmounted by a large rock and shoals, marked by a buoy at the seaward end, extend up to about 3 miles NNW of it.

The shores of this bay are mostly sandy and rocky, and the land is sparsely covered with pine woods. On the W side, a range of hills stretches the whole length of the peninsula and forms steep cliffs in places which are densely wooded. Several villages stand along the shores of the bay. At the head of the bay the land is low. Between Loksa, in the SE corner, and Odakivi, 3.5 miles N, the land is high, but it becomes low again further to the N. Hara Saar, lying close off the SW shore of this bay, is a densely wooded islet, 12m high, marked by a beacon.

Large vessels may anchor, in a depth of 40m, mud, about 0.7 miles NE of Hara Saar.

1.12 Loksa Sadam (59°35'N., 25°42'E.), a small harbor, is situated at the head of Hara Laht. Pilots are available and may be contacted by VHF. They board in position 59°40'N, 25°35'E. Vessels should send a request for pilotage and an ETA through the harbormaster or the Estonian Maritime Board Coordination Center at least 24 hours in advance.

The harbor is protected by two breakwaters. There are two wharves, 120 and 140m long, with depths of 3.7m alongside.

It is reported that several prominent chimneys stand at a factory in the vicinity of the harbor.

Mohni Saar (59°41'N., 25°48'E.) is described with the off-lying dangers in [paragraph 1.3](#). A submarine cable extends SW from this island to the mainland.

Eru Laht is entered between Purekkari Neem, on the W side, and Mohni Saar. The W shore of the bay is wooded. The E shore of the bay is formed by the Kamu peninsula, which is sandy, moderately high, and covered with tall pine trees. A prominent tower is reported to stand on the NW extremity of

this peninsula. Foul ground and rocks extend NNW between the N end of the peninsula and Mohni Saar. The S shore of the bay is low and partly wooded. The village of Eru stands at the head of the bay. A beacon stands at Turbu Neem, about 4.3 miles SSE of Purekkari Neem. A river flows into the SW corner of the bay and is fronted by foul ground.

Anchorage may be obtained as convenient in the bay, but vessels usually anchor about 1.5 miles N of Eru at the head. Local knowledge is advised.

Kasmu Laht is entered between the NE extremity of the Kamu peninsula and Lobineem, about 1.7 miles ENE. The shores of this bay are sandy, stony, and backed by trees. The S shore is low. The village of Ihumae, with a prominent white church, stands behind the trees on a steep hill, about 3 miles inland from the head of the bay.

Lobineem, surmounted by a tower, is rocky and, at some distance inland, covered with trees.

Anchorage may be obtained in any part of the bay in a convenient depth. Several dangerous wrecks are reported to lie in the vicinity of the entrance to this bay.

1.13 Vergi Sadam (59°36'N., 26°05'E.), a small fishing and pleasure craft harbor, lies about 5 miles SE of Lobineem. The coast between is fronted by foul ground. The N side of the harbor is protected by an islet connected to the mainland by a rocky reef. The E side is protected by a breakwater. A light is shown from a tower, 11m high, standing on the NE extremity of the islet.

The harbor has a least depth of 4m and is open to E winds. A dredged channel, about 75m wide, leads into the harbor and is indicated by lighted range. Local knowledge is advised.

Kalkgrund (Soemadal), an extensive shoal area, lies about 6.5 miles N of Vergi Sadam. It has a least depth of 0.5m and is marked by a buoy.

Vainupea (59°35'N., 26°16'E.) is located 5.2 miles E of Vergi Sadam. A light is shown from a framework tower, 20m high, standing on this cape. A white church, with a prominent red roof, stands close S of the light.

Snegi Madal, an extensive shoal area, lies about 6 miles N of Vainupea. It has a least depth of 2.6m and is marked buoys.

Pohja Uhtja, lying 6 miles E of Snegi Madal, is described with off-lying dangers in [paragraph 1.4](#).

Toolse Neem, surmounted by the conspicuous ruins of a castle, is located 6.8 miles ESE of Vainupea. The coast between is formed in places by several white sandhills.

1.14 Kunda Laht (59°32'N., 26°32'E.) ([World Port Index No. 28440](#)) is entered between Toolse Neem and Ulluneeme, 3.5 miles ENE. This bay is sheltered from S and E winds. The E and S shores are low and covered with trees, meadows, and swamps. A limestone ridge rises steeply about 1 mile S of the head of the bay. The Kunda Jogi flows toward the bay through this ridge. Several cement works, with tall chimneys, stand on an area of high ground near the river bank, about 1.5 miles inland. A prominent mill is situated about 1.5 miles SE of the head of the bay.

Extensive reefs front the shores and for the most part are covered at HW. In the E part of the bay, the depths are more uniform and small vessels are able to approach within 0.8 mile of the shore.

Kunda Sadam, a small harbor, lies at the head of the bay. It consists of two piers and is used for the export of cement. The entrance channel is 70m wide and has a depth of 10.4m. It is indicated by a lighted range and marked by buoys. Pilots are available and should be contacted by VHF at least 4 hours before arrival. They board in positions 59°38.0'N, 26°29.5'E (Kunda Bay) and 59°27'N, 27°55'E (Narva Bay). Vessels should send a request for pilotage and an ETA through the harbormaster or the Estonian Maritime Board Coordination Center at least 24 hours in advance.

There are three berths, 32 to 176m long, with depths of 7.5 to 9m alongside. Vessels up to 8,000 dwt, 150m in length, and 8m draft can be accommodated.

Vessels may anchor, in depths of 12 to 14m, sand, midway between the spar buoys marking the foul ground on either side of the entrance channel.

It is reported (1999) that a designated anchorage area lies about 4 miles N of the port, centered in position 59°34'N, 26°32'E.

Letipea Neem (59°33'N., 26°37'E.), fronted by foul ground, is located 1 mile NE of Ulluneeme, the E entrance point of Kunda Laht. A light is shown from a tower, 14m high, standing on this cape.

Diomidi Madal, an extensive shoal area, lies centered 7.5 miles NE of Letipea Neem and has a least depth of 4.6m.

Neugrund, an extensive group of shallow rocks and shoals, lies 24 miles NE of Letipea Neem and is marked by buoys on the N, S, and W sides, and by a lighted buoy at the E side.

1.15 Narva Laht (Narvskiy Zaliv) lies between Letipea Neem and Mys Kurgal'skiy, about 47 miles ENE. The coast of this bay is mainly sandy and backed by cliffs, decreasing in height to the E; the plateau surmounting the cliffs is covered with pastureland and villages, with small woodlands in places. The shore is fronted by shoals and foul ground in many places.

A small craft harbor, protected by a breakwater, lies at Mahu, 4 miles ESE of Letipea Neem, and has a depth of 3m.

A cement factory, with several tall and conspicuous chimneys, is situated at Aseri, about 9.5 miles SE of Letipea Neem. A prominent church stands about 4 miles W of Aseri.

A light is shown from a framework tower, 28m high, standing at Moldova, 6 miles ESE of Aseri. Two windmills are situated on a hill at Valaste, 15 miles E of Aseri. A conspicuous windmill is situated at Toila, 20 miles E of Aseri. The cliffs in the vicinity of Toila are very steep in places.

Sillamae, a resort, stands on the high sandy coast, about 8 miles E of Toila. Merikula, another resort, is situated in a wooded area, 6.5 miles E of Sillamae. The Sinimaed Hills, partly wooded and 90m high, extend between these two resorts. They stand about 1.5 miles inland and are conspicuous from seaward.

Caution.—Several dangerous wrecks, which may best be seen on the chart, lie in the SE part of Narva Laht.

Extensive areas of foul ground and shoals, which may best be seen on the chart, extend up to 16 miles W and 15 miles N of the peninsula forming the E side of Narva Laht. Banka Namsi is the outermost danger on the W side. This bank has a least depth of 1.4m and is marked by buoys on its N, S, and W sides, and by a lighted buoy on its E side.

Due to the presence of a sunken mine, a restricted area, with a radius of 3 miles and which may best be seen on the chart, lies centered about 4.5 miles NE of Sillamae.

1.16 Narva Joesuu (59°28'N., 28°03'E.), a small commercial and fishing harbor, is situated on the SW side of the entrance of the Narva Jogi, in the SE corner of Narva Laht. The river mouth is narrow and fronted by a bar. A dredged channel through the bar has a depth of 4.3m (1944). The river becomes wider inside the mouth and is navigable as far as the town of Narva, 7.5 miles SE. Ocean-going vessels cannot ascend the river above the town because of a waterfall.

The harbor is well-sheltered from all winds, but access is impossible during gales. The old town, on the W bank of the river, is of medieval appearance and surrounded by fortified walls and towers. There is 260m of berthage, with depths of 3 to 9m alongside.

A main light is shown from a round tower, 30m high, standing at the S side of the entrance. Lighted ranges indicate the approach and entrance fairways.

The approaches are usually free of ice from the middle of April until the beginning of November.

Pilotage is compulsory. The pilot station is situated close to the main light tower. Pilots board vessels in the roadstead, seaward of the bar.

Vessels may anchor, in depths of 18 to 20m, about 2.8 miles WNW of the main light. The anchorage is open to N and W winds, which on occasion will raise a heavy sea; however, the holding ground is good. Small vessels may anchor, in a depth of 15m, about 1.5 miles NW of the light.

Mys Kurgal'skiy (59°47'N., 28°06'E.), the E entrance point of Narva Laht, forms the NW extremity of the Kurgal'skiy Peninsula.

A small craft harbor, with depths of 3 to 4m, is situated at Gakkovo, 11.3 miles N of Narva Joesuu. The approach channel is indicated by a lighted range. Ostrov Reymosaar lies about 1 mile off the coast near this harbor.

A main light is shown from a framework tower, 37m high, standing at Kaybolova, 5 miles N of Gakkovo. A radiobeacon is situated at this light. The coast between is fronted by foul ground, rocks, and islets.

Caution.—A restricted area, the limits of which are shown on the chart, extends up to 5.5 miles N from the N end of Kurgal'skiy Peninsula.

1.17 Luzhskaya Guba (59°44'N., 28°19'E.), at the head of which is the mouth of Reka Luga, is entered between Mys Kurgal'skiy and Mys Kolgompya, 14 miles ENE. A lighted range, which may best be seen on the chart, is situated on Mys Kolgompya and indicates the approach from the N.

The W shore of this bay is densely wooded; along the whole length of the E shore are Soykina Gora, which from NW and NE appear as two separate ridges, the southernmost one being generally about 90m high.

A main light is shown from a framework tower, 41m high, standing at an elevation of about 180m at Gorki, 3 miles SW of Mys Kolgompya. At the farm of Repino, about 2.5 miles SSW of Mys Kolgompya, there is a stone windmill.

A harbor, known as Ruch'i, lies at the E side of the bay, about 2 miles SW of Gorki Light. There were extensive

facilities for servicing naval vessels here, but it is reported (1997) that the harbor, for the most part, is in a state of disrepair and has been abandoned.

Reka Vyb'ya enters the SW corner of Luzhskaya Guba, and about 1.8 miles E is the mouth of Reka Luga. Sandhills rise between the mouths of these two rivers.

Vessels may anchor within Luzhskaya Guba, in depths of 7 to 18m. Winds from between N and W raise a heavy sea throughout the bay.

Caution.—The bay and its approaches are encumbered by extensive shallow shoals which may best be seen on the chart. These shoals extend up to about 6 miles seaward of the entrance to the bay and are marked by lighted buoys and beacons.

1.18 Reka Luga (59°40'N., 28°19'E.) ([World Port Index No. 28410](#)), at the mouth of a river, has a natural harbor available to small vessels.

Ice.—The harbor is usually frozen over until the middle of April.

Depths—Limitations.—The river mouth is fronted by a bar across which a channel, dredged to a depth of 4.7m, extends as far as a sawmill about 2 miles inside the entrance. The channel, which is indicated by a lighted range and buoys, has a width of only 40m in places.

Vessels up to 82m in length and 4.5m draft can be handled. Vessels having the maximum draft must use tugs. The use of tugs for vessels with drafts of less than 4.4m is left to the discretion of the pilot.

A settlement is situated close E of the mouth of the river. There is a red church with a prominent green roof.

Pilotage.—Pilotage is compulsory for commercial vessels. Pilots can be contacted by VHF and board outside the bar.

Anchorage.—Vessels may anchor in the approaches, in depths of 7 to 8m, sand, clear of the fairway.

Caution.—It is reported (1999) that a new coal terminal, known as Ust Luga, is under construction in the vicinity of the harbor.

1.19 Mys Ustinskiy (59°55'N., 28°59'E.), fronted by foul ground and dangerous wrecks, is located 14 miles ENE of Mys Kolgompya. A light is shown from a framework tower, 29m high, standing on this point.

Koporskaya Guba lies between the two points and derives its name from Koporskiy Castle, now in ruins but still prominent, standing on a hill about 12 miles S of Mys Ustinskiy. A church, with a green dome and spires, is situated within the ruins of the castle; another church, with a green dome, stands close SE. The land to the N of the castle is wooded, while meadows extend to the S.

A tall white chimney stands at Sista Palkino, on the SE shore of the bay, 6.5 miles S of Mys Ustinskiy.

The former Dibicha Palace is situated about 4.8 miles SE of Mys Kolgompya. It is a prominent white stone building with a small tower.

Koporskaya Guba is open to N winds and, at times, SW winds raise a choppy sea. The shores of the bay are low, rocky, and covered with trees interspersed with meadows and marshy ground. There are no harbors in the bay but shelter is available.

During offshore winds, anchorage may be obtained, in depths of 11 to 18m, within the S part of the bay and in 23 to 31m, mud and sand, in the N part.

Caution.—Foul ground and shoal patches extend up to 2 miles from the shores of the bay and may best be seen on the chart.

The W limit of the Kronshtadt Fortified Zone lies at the E side of Koporskiy Guba and may best be seen on the chart.

1.20 Mys Shepelevskiy (59°59'N., 29°08'E.), fronted by foul ground and wrecks, is located 6 miles NE of Mys

Ustinskiy. A main light is shown from a prominent stone tower, 36m high, standing on this point, at the N end of the Karavalday Peninsula.

Mys Osinovyy, surmounted by a beacon, is located 2.5 miles SW of the light.

Banka Demanstey, an extensive shoal, lies centered 11 miles W of the light. It has a least depth of 4m and is marked by buoys.

The waters lying E of Mys Shepelevskiy are described in [Sector 3](#).